

# **Assessment of two microphysics schemes in the NOAA Environmental Modeling System (NEMS) Non-hydrostatic Multiscale Model on the B-grid (NMMB)**

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## **ABSTRACT**

The NOAA Environmental Modeling System (NEMS) Non-hydrostatic Multiscale Model on the B-grid (NMMB) numerical weather prediction model is used operationally at the National Centers for Environmental Prediction (NCEP) in multiple forecasting systems including the North American Mesoscale (NAM) model and as a member of the Short-Range Ensemble Forecasting (SREF) system. To investigate impacts of physics diversity within NEMS-NMMB on forecast performance, the Developmental Testbed Center (DTC) extensively tested and evaluated two physics suite configurations. The baseline configuration was run with the NAM operational physics suite (including the Ferrier-Aligo microphysics scheme) while the second configuration substituted the Thompson microphysics scheme.

This presentation will focus on assessing the forecast performance of the two configurations; both configurations were run over the same set of cases, allowing for a direct comparison of performance. The evaluation was performed over a 12-km North American domain with a 3-km CONUS nest and a 3-km Alaska nest for select one-month periods during 2013 and 2014. Simulations were initialized every 36 hours and run out to 48 hours. The testing periods allow for the opportunity to investigate seasonal and regional differences between the two configurations. Results will focus on the evaluation of traditional verification metrics for surface and upper air variables, along with an assessment of statistical and practical significance. A subset of the results will be discussed.